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ABSTRACT

Apprenticeship is primarily a training activity, is administered by the United States Department of Labor, and is probably the oldest systematic form of employment preparation for youth in this country. Cooperative education (CWE), on the other hand, has as its focus an education (versus "training") philosophy, is administered by the Department of Education, and is one of the newest forms of occupational preparation that has been established in secondary and postsecondary schools. Although both of these programs serve students, apprenticeship programs have been inaccessible to women, minorities, and handicapped persons; vocational CWE, while more accessible, also has not met the needs of disabled students. Both for serving all youth and for helping special needs students, some changes should be made in these programs. Recommended changes include the following: (1) both programs should allow for earlier entrance ages based on individual needs; (2) junior and community colleges should be supported in efforts to begin CWE/apprenticeship programs articulated with similar programs on the secondary level; (3) various alternative programs for both apprenticeships and CWE should be tried on a community-to-community basis; and (4) both secondary and postsecondary schools need to be encouraged and reinforced for placing students in work environments depending upon individual requirements; special needs students should be included. (KC)

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**Apprenticeship Programs and Cooperative Vocational Education**

**Illinois State Board of Education**

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State Superintendent
of Education

**Department of Adult, Vocational and Technical Education**

Research and
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# Can They Work Together for Special Needs Students?

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TECHNICAL ASSISTANCE SERVICES:
ILLINOIS SPECIAL NEEDS
POPULATIONS

# Apprenticeship Programs and Cooperative Vocational Education:
## Can they work together for special needs students?

The public, as a whole, seems to be convinced of the relevance of education for employment in our secondary public schools. For example, in Gallup's (1980) "Poll of the Public's Attitude Toward the Public Schools", vocational training ranked second only to basic education as an area in which the Department of Education should give special attention in the next few years. A year later, Gallup (1981) found vocational training was ranked third behind "developing student's moral and ethical character" and "teaching students how to think". Yet when asked to grade how well vocational education was being provided in the public schools, vocational education received the lowest percentage of "A or B" ratings (35%), and the highest proportion of "D or Fail" ratings (21%).

At issue with the public, then, appears not to be whether vocational education/training should be provided in America's public schools, but in what manner and to what extent. These concerns point to a fundamental issue in the preparation of teenagers for employment: the directional or philosophic issue of vocational education versus vocational training. "Vocational education" as it is most frequently offered in this country, consists of a two year, school-based, instructional program aimed at providing competence in a single occupation or occupational cluster. A component in this process that is becoming more and more frequently seen is a "capstone" experience, cooperative education, which involves placing students in an employment setting at or near the end of the student's educational sequence. "Vocational training" typically contains both the classroom training and the work experience elements, but inverts the emphases, placing far more time upon the preparation for employment through work experience rather than in related instruction. Agencies such as CETA prime sponsors, the Bureau of Apprenticeship Training, and the military support these kinds of programs.

Arguments favoring both of these models of employment preparation can be traced back to the initial debates preceding the Smith-Hughes legislation by Charles Prosser and David Snedden versus John Dewey. Prosser and Snedden argued that vocational education should be offered with social efficiency in mind; that is, vocational education of youth should be highly job-oriented and centered around training for a specialized occupation or sub-component of an occupation, thereby providing a highly trained but mobility-limited pool of workers from which employers could choose. Dewey's philosophical position could be characterized as being more student-oriented rather than employer-oriented. He favored putting students through a broad offering of vocational alternatives with the ultimate goals clearly being increased employment options for graduates and a more enriched understanding of technological processes and work ethics. Prosser and Snedden's position was most closely aligned with the concept of training while Dewey's position characterized the classic goal of vocational education. Thus, vocational training supplies the student with that which needs to be known to obtain job-specific employment, while vocational education focuses upon more generic processes applicable to entire occu-

pational clusters, and serves to broaden the individual for a role in society as well as at the work place.

Both forms of employment preparation have occurred widely throughout this country since the beginning of the twentieth century. A simplistic summary of each form would hold that vocational education has as its locus the school, as overseen by educators and is reserved primarily for in-school, school-aged youth. Vocational training, on the other hand, has as its locus a specific employment setting, is overseen predominantly by non-educators and is reserved primarily for out-of-school, school-aged youth and adults.

Neither the Prosser/Snedden nor the Deweyian model have been without troubles either in the past or in recent times. Vocational education, for example, has chronically been plagued by a lack of consistent definition of purpose. This problem probably originated in the dualistic manner in which the Smith-Hughes legislation established federal support and direction for vocational education. Essentially, it was to have been offered in an educational setting, although under separate administration from the general education mainstream, yet its criteria for effectiveness (and funding) has consistently been focused upon placement of graduates in specific occupations for which they have been trained—clearly an evaluative criterion that is neither located in nor controlled by educators in an educational setting (Evans, 1981).

Similarly, federally-supported employment training programs have suffered from problems of definition, fragmentation, and multiple purpose, both before and after the consolidation of programs into the Comprehensive Employment and Training Act in 1973. Greenleigh Associates, (1968), for example, in a comprehensive review of all job training programs including the Manpower Development and Training Act, recommended no less than 25 statutory and administrative policy changes. Among the recommended changes were sequential linkages between MDTA programs and other work and training programs, inservice programs for administrative and counseling staff, and "two new linkages . . . between the vocational education system and the local job training complex" including:

> A substantial amount of funds authorized under the Vocational Education Act of 1963 should be earmarked for "Special Needs" and be used by the vocational education system in conjunction with comprehensive work and training programs.
>
> The vocational education in-school programs should be offered to youth outside the school system, via an outreach program, and in the form of cooperative education. (p. 89)

The consolidation of manpower development programs under the CETA umbrella in 1973 did not appear to have substantially reduced or eliminated the nature and scope of the problems outlined by Greenleigh (1968). For example, ten years after the Greenleigh report, the Department of Labor and the Office of Education issued a joint memorandum again calling for increased linkages between CETA programs and local vocational education programs. Again, a somewhat simplistic conclusion might be drawn and supported that both vocational education and manpower training programs have consistently suffered from and been criti-

cized for a lack of clear administrative and operational alignment to a single philosophic base in either education or training.

It is not within the scope of this paper to analyze the strengths and shortcomings of the multi-faceted manpower training and vocational education programs in this country. Rather this monograph intends to briefly analyze two discrete service delivery forms, apprenticeship and cooperative education, and render some suggestions about the manner in which some alterations in those programs might help to clarify their respective roles in the total employment preparation sphere. A rationale will then be developed linking these programs to the employment preparation of special needs learners. It is important to note at the outset that, although apprenticeship and cooperative education may seem similar in nature, the former is clearly a "training" form, is administered by the Department of Labor, and is probably the oldest systematic form of employment preparation for youth in this country. Cooperative education, conversely, has as its focus an "education" philosophy, is administered by the Department of Education, and is one of the newer forms of occupational preparation that has been established in our secondary and post-secondary schools.

## APPRENTICESHIP

Evans and Herr, (1978) described apprenticeship as the oldest formal training system in which both the trainer and trainee had a vested interest in the training process. It flourished, particularly in the highly skilled crafts, until approximately the last quarter of the nineteenth century. At that time, massive changes in the manufacturing and technological processes signaled an end in the willingness of either the trainee or the employer (trainer) to fund and be responsible for long periods of training inherent in the apprenticeship model (Mays, 1927).

Although trade unions have been consistently supportive of apprenticeship programs, their concurrent rise in power and influence in the workplace and in apprenticeship training tended also to reduce access and numbers in those programs. Douglas, (1921, p. 74) documented the dramatic decrease in numbers of apprentices from a ratio of 1 apprentice to 33 employed in manufacturing in 1860, to 1:98 ratio in 1910. Mays, (1927) summarized this decline:

> (B)y 1860, the Industrial Revolution had already done its work in so far as apprenticeship was concerned and America entered the great industrial expansion of the seventies and eighties with no program in industrial education . . . The old apprenticeship had disappeared forever and no adequate substitute was found for it . . . (T)he nineteenth century closed with genuine apprenticeship destroyed and the problem of the adequate training of skilled industrial workers unsolved. (pp. 69-70)

In 1937, Congress revived the apprenticeship system through the National Apprenticeship Act and established the Bureau of Apprenticeship Training (BAT) under the supervision of the Department of Labor. The BAT exists today, and is one of the few employment training programs that are not included under the CETA umbrella.

Although the federal regulations implementing current apprenticeship programs have not changed since the original 1937 Act, the U.S. Department of Labor published a definition in 1974 categorizing an apprenticable occupation as:

one that customarily is learned in a practical way through one or more years of experience and training of the job, supplemented by related technical instruction. (p. 3)

Within those apprenticable occupations, several different types of arrangements can be developed between employer(s) and union(s), either singly or cooperatively in the development of an apprenticeship program. The State Advisory Council on Adult, Vocational, and Technical Education (Illinois State Board of Education, 1978, p. 1) described six kinds of programs:

1. Group Joint: a program embracing two or more employers jointly established by employers or union(s), and administered by a committee equally representative of employer(s) and union(s).
2. Individual Joint: a program embracing only one employer jointly established by the employer and union, and administered by a committee equally representative of the employer and the union.
3. Group Waiver: a program embracing two or more employers, however either labor or management waives their right to administer.
4. Individual Waiver: a program embracing only one employer, and that employer or the union waives its right to administer.
5. Group Not Joint: a program embracing two or more employers who maintain total control of the program.
6. Individual Not Joint: a program embracing one employer who maintains total control of the program.

Any employer wishing to engage in a BAT sponsored apprenticeship program must conform to a lengthy list of standards or guidelines (U.S. Department of Labor, 1977, p. 18, 19) some of which include:

- the starting age of apprentices must be not less than 16;
- equal opportunity for access must be assured;
- a schedule of work processes must be established;
- organized related instruction must occur (not less than 144 hours per year);
- a progressively increasing schedule of wages must be provided;
- there must be periodic progress evaluation;
- no discrimination in any phase of selection, employment or training may occur.

Currently, apprenticeship enrollments are primarily restricted to the construction trades (about two-thirds of all apprentices), some metal-working occupations, and the graphic communications industry (Evans & Herr, 1978; U.S. Department of Labor, 1979).

Labor unions have been able to maintain virtual autonomy over most of the apprenticeship programs, primarily due to an overwhelming preponderance of programs in trades where there is powerful union influence. As mentioned before,

this influence began with the decline of the traditional apprenticeship in the late 1800's and the concurrent rise in labor union power. Union control has dominated most apprenticeship programs ever since, due also to the fact that it is almost totally financed by organized labor and management (Ginzberg, 1979).

Apprenticeship programs have not been without their problems since the federal government began its support of them through legislation in 1937. Ginzberg, (1979), Somers, (1972), and Barocci, (1973, p. 37) have argued that apprenticable occupations need to be expanded into the hitherto unapprenticable service areas rather than continue to be confined to fields in trade and industry. Vocational education has responded to our service-oriented economy through additions of the Health Occupations and Distributive Education divisions. Apprenticeship programming would almost surely benefit from expansions of a similar nature.

Recommendations have also arisen from several sources calling for more flexible program characteristics in apprenticeships. Demspey, (1970) described this increased flexibility in terms of "modular" or block training, and concluded that increased flexibility would allow for adaptations to technological changes, as well as customized programming according to differences in individual learning rates. Drouet, (1968) elaborated upon a variety of modes that might be utilized, and concluded that "block training" or a sandwich approach (Venables, 1959) might be the most suitable approach for young apprentices. Barucci, (1973) and Foltman, (1973) reinforced this suggestion and added that increased articulation/coordination needs to take place between the related instruction that occurs in secondary schools and in post-secondary institutions.

The issue of related instruction in apprenticeship programs is one that is addressed frequently in the literature. Drew, (1969) recommended increased use of technologically innovative teaching techniques as well as continual education of journeymen who provide instruction on the job. This suggestion was elaborated by Strauss, (1968), Roomkin, (1973) and Cassell, (1976), who added that increased pre-apprenticeship programs need to be established to facilitate the transition from school to full-time apprenticeship programming.

Finally, a critical shortcoming in typical apprenticeship practices was raised by Ginzberg, (1979), Marshall, (1973), and Greenleigh, (1968)—equality of access to apprenticeship positions for minorities, handicapped populations, and women. As Ginzberg stated:

> Apprenticeship programs have historically been in conflict with a modern society's definition of equity. In the United States, for example, access to apprenticeship training was long considered a property right that could be handed down from one generation to the next. And it has taken a great deal of effort in the United States—legal, political, and other—to open apprenticeship to people whose parents or relatives are not themselves journeymen. (p. 115)

Mangum, (1968) made a similar argument, but from a different viewpoint. He suggested that strictly from an economic standpoint, if the federal government intended to subsidize training in industry, then "the clearest case is that for opening access to jobs for the competitively disadvantaged" (p. 14). The validity of the above arguments notwithstanding, little progress seems to have been made to open up

apprenticeship programs to handicapped and disadvantaged populations. An Office of Civil Rights (1979) survey of over 10,500 school districts nationwide indicated that only 0.4% of apprentices were identified as being handicapped.

In summary, apprenticeship programs have been critically appraised in terms of the changes necessary to make them more responsive to technological, social, and political issues in the 1980's. Drew's (1968) first recommendation may be critically important in this endeavor, namely that a more systematic approach needs to be taken by BAT policy-makers in their reshaping efforts. A consensus of research also appears to point in the direction of the need for more focused efforts upon pre-apprenticeship programming at the secondary level, as well as the opening up of apprenticeship positions to special needs populations and in non-traditional occupations.

## COOPERATIVE EDUCATION

Cooperative education programs in vocational education are as recent to education for work as apprenticeship is old. Cooperative education apparently had its inception at the post-secondary level at the University of Cincinnati's School of Engineering in 1906. Although it was slow to catch on early in this century, the period of time from 1961 to 1977 saw a dramatic increase in programs at the post-secondary level, from 65 to 1057 respectively (Wilson & Knowles, 1978).

Cooperative education, or cooperative work experience (CWE) as it will be referenced henceforth in this paper, began much later at the secondary level, but rose sharply, from no formal programs in 1930 to about 312,000 in 1972 (Lee, 1972-73).

Firestein, (1978) defined cooperative education:

> Cooperative education is a working partnership in which an educational institution joins with an employer in a structured relationship. Its basic purpose is that of providing a means whereby a student can combine study at the institution with a work experience that is under the supervision of the employer in order to fulfill the total requirements of a particular educational program. (p. 2)

At the high school level, CWE has typically consisted of a one-year (capstone) program during a student's senior year, in which that student is enrolled in a cooperative education course at the school, and also engages in supervised, paid, part-time work during specified periods of school time. Training plans for each student placed in employment are developed and supervised by the cooperative education coordinator.

Meyer, Crawford, and Klaurens, (1975) reference the notes and working papers of the U.S. Senate (Senate Subcommittee, 1968, p. 41) who concluded during the reauthorization hearings for vocational education in 1968, that cooperative vocational education was "undoubtedly the best program in vocational education" and consistently:

- yields high placement records,
- yields high employment stability,
- yields high job satisfaction,

- develops leaders,
- responds to short-term fluctuations in employer demand,
- is popular with the students.

Evans, (1978) mentioned some additional advantages of CWE programs. They require lower capital investments in terms of equipment and space than do most other vocational education offerings. Additionally, CWE programs bridge the gap between simulated and real work experiences, and provide a realistic and concrete transition for the student from school to work.

Evans, cited several disadvantages to CWE programs as well:

1. They are difficult to develop in very small communities, or in communities where employers have strong work agreements with workers.
2. Scheduling can become a problem.
3. Responsiveness to short-term fluctuations in employer demand can result in sharply decreased enrollment during times of economic recession.

Karnes, (1978) and Monaco, (1979) added that federal regulations protecting against exploitation of youth labor also have had a detrimental effect, specifically in terms of the minimum wages; both recommended lower wage rates for in-school youth (a suggestion that has recently been endorsed by the Reagan administration) to around 75% of the current minimum. This reduction would also be likely to cause a decrease in the excess training costs incurred by employers, making them more amenable to accepting CWE placements. Karnes, (1978) also noted that CWE students seemed to prefer their work more, had increased interest in school, and expected to continue to work at that occupation at a rate roughly 2 1/2 times that of students who were employed part-time in non-CWE jobs.

It seems that the major disadvantages to CWE programming originate, in part, with the conflict in purpose for vocational education that exists between local educators and federal legislators. Those who reauthorize and reappropriate monies for vocational programs seem most content with the cost-effective, "training" aspects of CWE. They appear to see no conflict in processes since, statutorily, vocational education has always been evaluated in terms of placement of graduates in occupations for which trained. CWE apparently has had a superior record in that regard, about 80% (Evans, 1969). Conversely, vocational educators and administrators, except cooperative education coordinators, seem loath to relinquish educational programming from the classroom, either philosophically in a Deweyan sense, or more pragmatically for fear of decreased enrollments in their classes. Organized labor has also consistently opposed CWE, fearing lack of control over numbers and quality of entrants into their respective occupations. Employers have also opposed CWE programs fearing additional costs in training and burdensome paperwork to recover those excess training costs (Evans, 1978).

On balance, it seems that most arguments against CWE from a "training" or social efficiency perspective, do not stand up. Our society has always valued and

encouraged students to work part-time during high school. It does not seem consistent that a part-time CWE placement that is integrated programmatically with the school, would be a violation of the "educational" aspect of vocational education. Rather, most arguments against CWE, when put to the test, are based in non-student centered concerns—turf issues with labor unions, vocational educators, administrators, and regulatory and economic considerations for employers. Ironically, it seems to be issues related to administrative and employer efficiency and convenience rather than genuine concerns for Dewey's "democratic education" that are likely to create stumbling blocks preventing increases in CWE programming nationwide.

To summarize, then, it appears that increased employment preparation that occurs on the work site and through integrated cooperative vocational education placements represents a closer alignment to student-oriented "democratic education", than does strict adherence to vocational education supplied exclusively within the confines of the school walls.

Briefly in review, apprenticeship programs have not typically been accessible to special needs populations in proportion to their numbers at the secondary level. Similarly, the development of Work Study programs (through the 94-482 legislation—the Education Amendments of 1976) appears to have discouraged a systematic integration of handicapped and disadvantaged students into mainstreamed CWE programs (OCR 1980). It would appear that increased enrollment and articulation of handicapped individuals in post-secondary schools would require their presence in mainstreamed CWE programs rather than segregated programs like those supported through Work Study.

## INTEGRATING SPECIAL NEEDS STUDENTS

A final yet necessary component in the process of taking special needs individuals from the beginning of vocational education programs through to the end of a vocational training and placement activity would appear to involve the use of more short-term work environments in the vocational education process prior to the CWE placement. A very logical rationale can be developed epistomologically for increasing the level of usage of actual work sites in this training process. For example, it is important to note that those students who have opted for vocational education in secondary settings have come predominantly from the lowest quartile of the student population in terms of general intellectual ability. Although there appears to be movement upward and away from this population bias, it is highly likely that vocational education will continue to be expected to serve a substantial segment of the lower half of the general population (measured in terms of general intellectual ability) in addition to increased numbers of special needs students. It is equally well established in research that, as general intellectual ability decreases to the lower extremes, an individual's ability to generalize skills learned in simulated work environments, i.e. school settings, to actual employment settings decreases as well. It should be stated here that vocational education has an excellent record of training students in school environments who have successfully made the transition to the workplace. Nonetheless, the argument exists that a blend of employment preparation which makes more extensive use of training on-the-job may help to ameliorate

the difficulties that many students, including special needs students, have in the education-to-work transition. A successful transition may be further accommodated in short-term, employer-specific training that occurs in educational settings, through increased curricular linkages between the prospective employer and the vocational educator. What is being suggested here, is that an umbrella construct of curriculum making systematic use of employer-validated skills for specific employment may be a useful tool in curriculum planning.

Interestingly, constructs that address this need have recently been delineated in the special education literature. For example, Wolf (1978), and Rogers-Warren, (1977) have recommended social or ecobehavioral validation of instructional processes by the consumers of that training and their supervisors. A related construct that may prove to be even more useful in vocational education planning is one developed by Brown, Nietupski, and Hamre-Nietupski, (1976). They labeled their construct the *criterion of ultimate functioning*, and explain it as follows:

> The criterion of ultimate functioning refers to the ever changing, expanding, localized and personalized cluster of factors that each person must possess in order to function as productively and independently as possible in socially, vocationally, and domestically integrated adult community environments... The position taken here is that the requirements of the criterion of ultimate functioning should be the standards by which educational activities are judged. (pp. 78)

In terms of present vocational curriculum or instructional processes, this construct would recommend much greater congruity between all facets of activity that occur in the classroom, and what actually happens in the specific employment setting for which that education is targeted. As an example, traditional methods of vocational assessment will be used.

Typical vocational assessment for entry into a vocational education program, if it occurs at all, generally consists of a counselor's review of the student's educational records, perhaps an interview to determine area(s) of vocational interest, a paper and pencil interest or aptitude assessment, and, more recently, the administration of a battery of work samples, again to aid in determining vocational interests or aptitudes. Rarely are regular vocational educators directly involved in individual vocational assessments, nor are specific course goals and objectives delineated to the student as a component of the assessment. Applying the criterion of ultimate functioning to vocational assessment would produce a markedly different process. Consider—the ultimate *functional* vocational assessment is an actual job interview. This construct, then, would require a vocational assessment for a specific course to approximate as closely as possible the job interview that is typical for employment in that particular occupation. Guidance personnel who would be responsible for vocational assessments, (analogous to a personnel officer in a business) would need to be familiar with the interview process that typically occurs in that occupation, as well as the content of the course that prepares one for the occupation, and what prerequisite skills are minimally necessary for entry into that specific training program

This example may appear unrealistic. As an applied construct, however, the criterion of ultimate functioning suggests that a few if any employers in entry-level

occupations for which vocational education students are usually trained, are concerned with issues of vocational interest or aptitude. When confronted with an applicant and letters of recommendation, the employer assumes interest by virtue of the applicant's presence, and is primarily interested in whatever generic employability skills the applicant may have, as well as specific skills he/she possesses relative to the actual job. Perhaps vocational assessment should more closely reflect this process, especially given the reliability and validity difficulties that many vocational assessment instruments encounter (Cobb, 1981).

Curriculum considerations for all individuals in employment preparation are heavily dependent upon the kinds of people who are to receive the instruction, and in what environment that learning is to take place. The central theme of this paper holds that national goals of increased worker productivity may be more easily attained if and when the diverse educational and social systems that provide education for employment engage in a concerted shift to more extensive use of short-term, job-specific, on-site training. This movement is philosophically tenable provided that training is individualized, flexible, and equitably offered. More specifically, social and worker productivity goals can be immediately and markedly addressed through increased utilization of moderately and severely handicapped individuals in competitive employment.

## SUMMARY RECOMMENDATIONS

A framework for the recommendations is provided by Ginzberg, (1979):

> Finally the improved articulation, integration, and coordination of the many components of the training system should be pursued. The system should be sufficiently flexible to make it possible for a partially trained person to enter the system and become fully qualified without having to start over at the beginning. (p. 117)

While the "system" to which Ginzberg was referring was the apprenticeship system, his comments could easily be generalized to include a linkage between apprenticeship and cooperative vocational education. In light of the interagency kinds of linkage initiatives such as the Department of Labor's 1974 publication describing CETA/Apprenticeship collaboration, and the 1978 Department of Labor/Office of Education joint memorandum, the following recommendations are offered:

1. Both CWE and apprenticeship programs need to allow for earlier entrance based upon individual needs.

The experience of European countries in apprenticeship clearly indicates that teenagers are capable of entering into apprenticeship agreements and benefiting from them at an age earlier than we in the United States have commonly assumed, (Reubens, 1979). Similarly, CWE programs, by limiting enrollment to the last year of school are functionally excluding all of those students who cannot or will not remain in school until their twelfth year. Quite obviously, many of these students are special needs students, and it is probable that these students would benefit from CWE programs at least as much as those students who persist in school long enough to become eligible for CWE placements.

It is just as likely that the structure and current practices of both the apprenticeship and CWE model would need to be altered somewhat, especially in terms of program flexibility to accommodate younger enrollees. Recommendations for increased flexibility in both the education and training models have been made before; necessary changes in program structure do not seem administratively insurmountable. It may be a much greater problem to alter the perceptions of workers (union), employers, educators, and education administrators about the philosophic and socioeconomic propriety of such alternatives.

2. Junior and community colleges need to be supported in efforts to begin CWE/apprenticeship kinds of programs that are articulated with similar programs at the secondary level.

Evans and Herr (1978) reported that CWE programs did not appear to be prominent in junior and community colleges. However, they seem to play a major role in providing related instruction for apprenticeship programs (Horstrup, 1978; Michigan Department of Education, 1979; Edling, 1978). It would appear highly desirable, then, to improve communication in articulated programs from a CWE model in secondary schools to a transition to related instruction in apprenticeship programming at the post-secondary level. The benefits for handicapped populations that would accrue from articulating Individualized Education Programs (IEPs) through to the community college level are clear as well (Reynolds, 1981). Given that most handicapped students who presently are enrolled in post-secondary schools are physically handicapped (Beuke, Lukas, Brigham, Glick, & Breen, 1980), a CWE/apprenticeship articulation of the IEP process model from secondary to post-secondary schools would clearly appear to enhance the likelihood of increasing the enrollment of mildly mentally retarded individuals in post-secondary schools as well.

3. Different models of delivery in both CWE and apprenticeship programs such as those elaborated by Drouet, (1968) and the variations of the sandwich programs described by Venables, (1959) need to be scrutinized as potential alternatives on a community by community basis.

This recommendation is closely related to that put forth in (1) above, and again stems from the notion that all CWE and apprenticeship programming need not be static. Depending upon school, school district, or individual student need, and upon employer training slot availability, a variety of differing alternatives need to be systemically available.

4. Both secondary and post-secondary schools need to be encouraged and systematically reinforced for placing students in work environments, either in the CWE or apprenticeship mode, depending upon individual requirements.

Fiscal mechanisms for the provision of such support have been specifically addressed by Monaco, (1979) and more broadly delineated by House, (1980). Both writers have recommended a form of an innovative tax credit which would be applied

in this instance to school districts on a case by case basis for placements of students in community work environments. Differential reimbursements might even be established along a continuum beginning with very limited CWE types of placements early in high school, and ranging to an apprenticeship type of arrangement later in an individual's program. Care would clearly need to be exercised to prevent misuse of the incentive and to ensure that the best interest of the student was considered. The idea is an interesting one however, and merits further exploration.

## CONCLUSION

The recommendations above are broadly conceived and more philosophically oriented than perscriptive. To the extent that any or all of them are truly feasible probably depends most heavily upon innovative and enterprising CWE coordinators and administrators in vocational education and personnel in labor and management with similar traits in the business sector. Linkages between employment preparation programs, schools, and business and industry can only occur when efforts at local levels to orchestrate them are systematically reinforced from above, through state and federal interagency initiatives and through cooperation from higher education in personnel preparation efforts. Initiatives in this direction have become the subject of much attention in the late 1970s (Levine, 1982) and need to be further encouraged. Perhaps Mays' (1927) vision described below may eventually become operational in the 1980s.

> An increasing number of factory organizations are cooperating with public schools in the training of apprentices...In such cases, the courses of study are cooperatively worked out by the schools and the employers. Excellent results are obtained from this arrangement, and it is probable that a considerable development in this direction will occur. (pp. 222-223)

Mays' vision could well have been written in a policy statement for the reauthorizing legislation for vocational education in the 1980's. Clearly the national goals of increased worker productivity and reduced unemployment of young adults would be enhanced through this kind of initiative. So too, in our opinion, would these goals be enhanced by the systematic inclusion of special needs populations in an articulation program from secondary CWE programs to post-secondary apprenticeship training slots.

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